UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>30 April 2009</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-72</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-72</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

- Applicant's amendment filed 4/30/2009 is acknowledged.

- Claims 1-72 are pending.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1,8-13,18,19,26-31,36,37,44-49,54,55,62-67, and 72 rejected under 35

U.S.C. 103(a) as being unpatentable over Perlman (US 5,844,902) in view of Shah (US

7,111,105) and Suzuki (US App. 2002/0041594).

Re claims 1,19,37 and 55:

Perlman discloses *a first and second node device connected to a fabric*

(Fig.1 ref.100 and 102 are node devices connected to a fabric).

Perlman further discloses *a first and second switch coupled* (Fig.1

ref.104,106,108,1001,112,114 where the bridges are switches).

Perlman further discloses *a plurality of ports configured to receive and*

transmit frames (Fig.1 ref.104,106,108,1001,112,114 where the bridges contain

ports that receive and transmit messages).

Perlman further discloses *a fabric manager coupled to the ports to obtain*

the received frame and provide a frame to be transmitted (Abstract "Messages

received from a first LAN are forwarded to a second LAN" where the bridge

contains a fabric manager).

Perlman further discloses *the fabric manager configured to add*

information to the frame, the information including receive and transmit port

identity and switch identity (Col.3 lines 31-33 "a header is attached to the

message indicating the address of the source end system and the destination

end system" and Col.5 lines 56-64 when a bridge receives an explorer message,

the bridge modifies the message by attaching an indication of the LAN number

and bridge number through which the message has passed, as well as any other

desired information and then forwards the modified version to all connected

LANs and Fig.2 ref. 126).

Perlman further discloses *the fabric manager adding information about*

each of the plurality of switches units and interconnections when a frame

traverses multiple switches (Col.3 lines 31-33 "a header is attached to the

message indicating the address of the source end system and the destination

end system" and Col.5 lines 56-64 when a bridge receives an explorer message,

the bridge modifies the message by attaching an indication of the LAN number

and bridge number through which the message has passed, as well as any other

desired information where information about the switch and ports is also

information about the switching units and Fig.2 ref.126).

Perlman does not explicitly disclose *a plurality of switching units coupled*

to the ports so that a frame traverses multiple switching units in the switch.

Shah discloses *a plurality of switching units coupled to the ports so that a frame traverses multiple switching units in the switch* (Fig.4 ref.601 is a node containing multiple bus bridges – where the node is a switch and the bus bridges contain switching units).

Perlman and Shah are analogous because they both pertain to data communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perlman to include switching units coupled to ports so that a frame traverses multiple switching units in a switch as taught by Shah in order to provide central control and connect network devices to a network.

Perlman does not explicitly disclose *adding information to a frame as it traverses multiple switching units.*

Suzuki discloses *adding information to a frame as it traverses multiple switching units* (Fig.3 and Para.[0039] Each bus bridge includes a switching unit connected between ports A and B. The packet switching unit translates the channel identifier contained in the header and forwards the header-translated multicast packet - where forwarding the header translation is adding information).

Perlman and Suzuki are analogous because they both pertain to network communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perlman to include adding information to a frame as it

traverses multiple switching units as taught by Suzuki in order to gather path

traversal information.

Re claims 8,9,26,27,44,45,62, and 63:

Perlman discloses *the fabric manager adding information to the frame*

when the frame is traveling from the original source to the original destination

and from the original destination to the original source (Col.5 lines 56-62 when a

bridge receives an explorer message, the bridge modifies the message by

attaching an indication of the LAN number and bridge number through which the

message has passed, as well as any other desired information).

Re claims 10,28,46 and 64:

Perlman discloses *a node device connected to a port and the fabric*

manager transmitting the frame to the node device (Fig.1 ref.100 and 102 are

node devices connected to ports and Abstract "Messages received from a first

LAN are forwarded to a second LAN" where the bridge contains a fabric

manager).

Re claims 11,12,29,30,47,48,65, and 66:

Perlman discloses *the fabric manager selecting a port to transmit the*

frame based on source routing information contained in the frame (Col.3 lines 31-

33 "a header is attached to the message indicating the address of the source end

system and the destination end system" and Col.3 lines 54-55 "Scheme which

use this technique are known as "source routing bridges" and Col.5 lines 56-64

when a bridge receives an explorer message, the bridge modifies the message

by attaching an indication of the LAN number and bridge number through which the message has passed, as well as any other desired information - where information about the switch and ports is also information about the switching units).

Re claims 13,31,49, and 67:

Perlman discloses *using normal routing rules if the source routing information does not indicate a device directly connected to the switch* (Col.3 lines 38-40 "Each end system on the LAN, upon receiving this message, determines if its address is Y, and if so, the end system reads the message" and Col.3 lines 63-65 Source routed messages are forwarded by the bridges from one LAN to the next - where if the message is not read, then it is forwarded on as disclosed above using normal routing rules).

Re claims 18,36,54, and 72:

Perlman discloses *determining if a switch is the source of the frame and if so, capturing the frame and not further transmitting it* (Col.3 lines 38-40 "Each end system on the LAN, upon receiving this message, determines if its address is Y, and if so, the end system reads the message" otherwise the messages is forwarded on as disclosed above using normal routing rules where once a message is returned to the source, it is captured by that source and not further transmitted).

3.   Claim 2-7,20-25,38-43, and 56-61 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Perlman in view of Shah and Suzuki as applied to claims 1,19,37,and

55 above, and further in view of Soumiya (US 6,671,257).

Re claims 2-7,20-25,38-43, and 56-61:

As discussed above, Perlman meets all the limitations of the parent claim.

Perlman further discloses *information including the link cost of a link* (Col.5

lines 40-43 "The explorers may also accumulate other data, such as the

maximum packet size along the path followed or the "cost" (expediency) of those

paths").

Perlman does not explicitly disclose the information including transmit and

receive rates based on a first defined period and a second defined period that is

greater than the first defined period and the number of frames and words

transmitted and received.

Soumiya discloses the information including transmit and receive rates

based on a first defined period and a second defined period that is greater than

the first defined period and the number of frames and words transmitted and

received (Fig.26 ref. 8~9 is a rate field, Col.26 lines 21-23 the rate changing unit

may change the explicit rate that the rate calculating unit calculates at a

predetermined ratio and Col.35 lines 21-36 the prolongment of the observation

period means that an interval between ER calculation times becomes longer.

The capability for calculating the ER in an observation period which is shorter

than a specified observation period and Col.7 lines 27-28 "an arrived cell number

counter for counting a number of arrived cells in correspondence with an output

channel" where calculating the transmission rate also contains information about

the amount of frames and words transmitted).

Perlman and Soumiya are analogous because they both pertain to

network communications.

It would have been obvious to one of ordinary skill in the art at the time of

the invention to modify Perlman to include rate information as taught by Soumiya

in order to more efficiently choose a path for transmission and to minimize

congestion.

4.   Claims 14,16,32,34,50,52,68, and 70 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Perlman in view of Shah and Suzuki as applied to claims

1,11,19,29,37,47,55,and 65 above, and further in view of Fredericks (US 6,347,334).

Re claims 14,16,32,34,50,52,68, and 70:

As discussed above, Perlman meets all the limitations of the parent claim.

Perlman does not explicitly disclose *a fibre channel switch, a frame*

addressed to a well known address, determining the true destination address by

retrieving data from the payload, and the frame being an extended link service

frame.

Fredericks discloses *a fibre channel switch, a frame addressed to a well*

known address, determining the true destination address by retrieving data from

the payload, and the frame being an extended link service frame (Col.1 lines 29-

30 "The Fibre channel switch" and Col.6 lines 29-31 "the RNID ELS message is

sent to the Fabric Controller at the address hex "FFFFFD" as is well known" and Table 1 and Col.5 lines 45-46 "The first word in the payload specifies the Command Code" and Col.5 lines 9-10 the payload of the accept message includes node identification data).

Perlman and Fredericks are analogous because they both pertain to network communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perlman to include a fibre channel switch and ELS message as taught by Fredericks in order to use a standard network setup and standard and well-known messaging.

5. Claims 15,33,51, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perlman in view of Shah and Suzuki as applied to claims 1,19,37,and 55 above, and further in view of Lee (US App. 2003/0099194).

Re claims 15,33,51, and 69:

As discussed above, Perlman meets all the limitations of the parent claim.

Perlman does not explicitly disclose *transmitting frames over a plurality of equal cost routes*.

Lee discloses *transmitting frames over a plurality of equal cost routes* (Para.[0005] "partially use a number of shortest paths having the same cost, that is, an equal cost multipath").

Perlman and Lee are analogous because they both pertain to network communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perlman to transmit data over equal routes as taught by Lee in order to balance the load on the paths and reduce congestion.

6. Claims 17,35,53, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perlman in view of Shah and Suzuki as applied to claims 1,19,37,and 55 above, and further in view of Hongal (US App. 2005/0053006).

Re claims 17,35,53, and 71:

As discussed above, Perlman meets all the limitations of the parent claim.

Perlman does not explicitly disclose *if a switch is the original destination of a frame, then modifying the frame to return it to the original source.*

Hongal discloses *if a switch is the original destination of a frame, then modifying the frame to return it to the original source* (Para.[0030] "The source MAX address is set to the system MAC address of the target network node (i.e. the target MAC address)" and "the destination MAC address in the frame's header could be set to the originator MAC address").

Perlman and Hongal are analogous because they both pertain to network communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Perlman to include modifying the frame to return to the original source as taught by Hongal in order to return information about a path to the source and therefore allow the source to choose an optimal path.

Response to Arguments

7.   Applicant's arguments filed 4/30/2009 have been fully considered but they are

not persuasive.

In the remarks, Applicant contends the bus bridges in Shah are not

switching units.

The Examiner respectfully disagrees. The bus bridges in Shah are

switching units (Fig.4 ref.601 is a node containing multiple bus bridges – where

the node is a switch and the bus bridges contain switching units). Switching units

is a very broad term in the art and bus bridges can be reasonably interpreted as

reading on the claimed limitation. A bus bridge transfers data between devices

as does a "switching units".

In the remarks, Applicant contends Perlman, Shah, and Suzuki are non-

analogous.

In response to applicant's argument that Perlman, Shah, and Suzuki is

nonanalogous art, it has been held that a prior art reference must either be in the

field of applicant's endeavor or, if not, then be reasonably pertinent to the

particular problem with which the applicant was concerned, in order to be relied

upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977

F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, all the listed prior

arts relate to data transmission between devices.

In the remarks, Applicant contends Perlman would not include information about each of the interconnected switching units and Suzuki does not disclose adding information.

The Examiner respectfully disagrees. Suzuki is relied upon to teach including information about each of the interconnected switching units (Fig.3 and Para.[0039] Each bus bridge includes a switching unit connected between ports A and B. The packet switching unit translates the channel identifier contained in the header and forwards the header-translated multicast packet - where forwarding the header translation is adding information). Changing information is the same as adding information because the new information that has been changed to has been added.

In the remarks, Applicant contends the messages in Perlman do not have the required additional information added to them and that they do not use normal routing rules.

The Examiner respectfully disagrees. A header is attached to the message indicating the source and destination address (Perlman Col.3 lines 31-33 and Col.5 lines 56-62 the bridges modifies the message by attaching an indication of the LAN number and the bridge number through which the message has passed, as well as any other desired information and Fig.2 ref.126 – modify message by attaching an indication of the LAN # and bridge # and any other desired information). The above disclosure shows other types of information that

can entered into an explorer packet. The messages are also related to the

explorer messages and "normal routing rules" are used (Col.5 lines 29-54 the

messages are used to route packets and the explorer messages are used to

discover the routes. Based on the discovered routes, a route and selected and

used.). Perlman's disclosure of routing rules reads on the applicants limitation of

"normal routing rules." The routing rules for the explorer messages are "normal

routing rules" for the explorer messages.

In response to applicant's argument that the references fail to show certain

features of applicant's invention, it is noted that the features upon which applicant

relies (i.e., normal routing rules require knowing the route) are not recited in the

rejected claim(s). Although the claims are interpreted in light of the specification,

limitations from the specification are not read into the claims. See *In re Van*

Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In the remarks, Applicant contends the citation of Perlman for claims

13,31,49, and 67 does not relate to the claims.

The Examiner respectfully disagrees. The cited portions of Perlman

(Col.3 lines 38-40 "Each end system on the LAN, upon receiving this message,

determines if its address is Y, and if so, the end system reads the message"

otherwise the messages is forwarded on as disclosed above using normal

routing rules) show that if the message belongs to the end system, it is not

further forwarded. If the message does not indicate the end system, then the

message is forwarded using "normal routing rules". This is also disclosed in

Perlman (Col.3 lines 63-65 Source routed messages are forwarded by the

bridges from one LAN to the next).

In the remarks, Applicant contends the combination of Perlman and

Frederick is hindsight.

The Examiner respectfully disagrees. In response to applicant's argument

that the examiner's conclusion of obviousness is based upon improper hindsight

reasoning, it must be recognized that any judgment on obviousness is in a sense

necessarily a reconstruction based upon hindsight reasoning. But so long as it

takes into account only knowledge which was within the level of ordinary skill at

the time the claimed invention was made, and does not include knowledge

gleaned only from the applicant's disclosure, such a reconstruction is proper.

See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In the remarks, Applicant contends Frederick does not mention anything

about retrieving the true destination address from the frame payload.

The Examiner respectfully disagrees. Frederick does mention retrieving

the "true destination address" from the frame payload (Col.6 lines 29-31 "the

RNID ELS message is sent to the Fabric Controller at the address hex "FFFFFD"

as is well known" and Table 1 and Col.5 lines 45-46 "The first word in the

payload specifies the Command Code" and Col.5 lines 9-10 the payload of the

accept message includes node identification data). Table 1 shows the

destination ID that is retrieved from the payload and Col.5 lines 9-10 further state

the payload contains address information.

Conclusion

1.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to MOHAMMAD S. ADHAMI whose telephone number is

(571)272-8615. The examiner can normally be reached on Monday-Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chi Pham can be reached on (571)272-3179. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mohammad S Adhami/   /Chi H Pham/
Examiner, Art Unit 2416   Supervisory Patent Examiner, Art
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